Evaluating a programme to develop social and emotional skills in primary school students

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Introducing SEAL

- SEAL – Social and Emotional Aspects of Learning
- Every Child Matters
  - Be Healthy
  - Stay Safe
  - Enjoy and Achieve
  - Make a positive contribution
  - Achieve economic wellbeing

“Social, emotional and behavioural skills underlie almost every aspect of school, home and community life, including effective learning and getting on with other people. They are fundamental to school improvement.”

DfES (2005: 7)
Introduction

“A broad range of evidence is now available to support claims for the effectiveness of work to develop children’s social, emotional and behavioural skills, in a number of areas:

- greater educational and work success;
- improvements in behaviour;
- increased inclusion;
- improved learning;
- greater social cohesion.
- ...improved academic performance.”

DfES (2005: 8)

Using survey data to evaluate SEAL skill development

Tools to inform the implementation and development of SEAL and measure impact
SEAL student self-rating surveys

- Which survey to use? (Edmunds and Stewart-Brown 2003)
- “About Me and My School” – already in use as an baseline tool by some of the LA’s schools
- DfES evaluation of Primary Behaviour and Attendance Pilot by the Institute of Education (Hallam et al, 2006)
- 40 different statements rated by students on a Likert scale from strongly agree to strongly disagree
- Typically schools had been analysing distribution of responses to individual statements.

1: I try to help people when they are unhappy

- strongly agree
- agree
- don't know
- disagree
- strongly disagree
SEAL student self-rating surveys

- SEAL is based on a 5 dimensional model
  - (Faupel 2003 based on Goleman 1995)

  ![Diagram of SEAL model]

- These represent the five aspects of learning in SEAL

Basic analysis provided for schools

Year 8 Tutor Groups

Statements linked to motivation

Survey items linked to the five aspects of SEAL
Generating SEAL aspect scores – Confirmatory Factor Analysis (CFA)

- The C in CFA – driven by theory not data
- Assign survey items to the 5 SEAL aspects
- Extra aspect added - “Attitudes to School and Teachers”
- Run the model with data to check model fit (Hu & Bentler 1999)
  - Single primary school n=228
- Adjust the model where justified
- Calculate the contribution each item makes to the aspect score

Generating aspect scores – Confirmatory Factor Analysis (CFA)

- Very poor model fit
- Still better fit than the original model employed in evaluation of B&A pilot (Hallam et al, 2006)
Generating aspect scores – Confirmatory Factor Analysis (CFA)

<table>
<thead>
<tr>
<th>Fit measure</th>
<th>5 dimensional SEAL baseline model</th>
<th>Original survey model (equal loadings)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-square</td>
<td>1422.3</td>
<td>1554.6.3</td>
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<tr>
<td>Degrees of freedom</td>
<td>721</td>
<td>692</td>
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<tr>
<td>GFI</td>
<td>0.763</td>
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</tr>
<tr>
<td>TLI</td>
<td>0.665</td>
<td>0.590</td>
</tr>
<tr>
<td>NFI</td>
<td>0.533</td>
<td>0.463</td>
</tr>
<tr>
<td>RMSEA</td>
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<td>0.075</td>
</tr>
<tr>
<td>pCLOSE</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>RMSR</td>
<td>0.116</td>
<td>0.142</td>
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<tr>
<td>Information criteria (in order of increasing penalty for complexity)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIC</td>
<td>1620.3</td>
<td>1672.6</td>
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<td>BIC</td>
<td>1959.8</td>
<td>1874.9</td>
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</tbody>
</table>

Generating aspect scores – Confirmatory Factor Analysis (CFA)

- Low factor weight items deleted from model <0.3
- Data is badly behaved
  - Skew and kurtosis cause problems (Brown 2006)
  - Most problematic items also deleted
- Items loading on managing feelings dimension divided
  - Managing feelings of anger and frustration
  - Managing behaviour
- Extra dimension of resilience added
Generating aspect scores – Confirmatory Factor Analysis (CFA)

### Fit measure

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mod 3 model 6 dimensions</th>
<th>Mod 4 model covariances</th>
<th>Mod 4 minus resilience</th>
<th>Mod 4 minus empathy</th>
<th>Mod 4 minus both resilience and empathy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-square</td>
<td>712.8</td>
<td>616.6</td>
<td>466.2</td>
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<td>0.898</td>
<td>0.890</td>
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<td>0.879</td>
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<tr>
<td>NFI</td>
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<tr>
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<td>0.083</td>
<td>0.096</td>
<td>0.086</td>
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Information criteria (in order of increasing penalty for complexity)
- AIC
- BIC
- CAIC
- BIC

### Generating aspect scores – Confirmatory Factor Analysis (CFA)

- Larger data set \( n = 1904 \) allowed examination of standardised residuals to identify points of strain
- Further deletion of problematical items
- Scale reliability coefficients (Raykov 2001, 2004)
  - Self-awareness \( \rho = 0.744 \)
  - Resilience \( \rho = 0.762 \)
  - Motivation \( \rho = 0.788 \)
  - Managing Feelings \( \rho = 0.689 \)
  - Managing Behaviour \( \rho = 0.795 \)
  - Social skills \( \rho = 0.839 \)
  - Attitudes to School and Teachers \( \rho = 0.824 \)
## Generating aspect scores – Confirmatory Factor Analysis (CFA)

<table>
<thead>
<tr>
<th>Fit measure</th>
<th>Mod 4 model with covariances n=220</th>
<th>Mod 4 model with covariances n=1904</th>
<th>Mod 5 model n=1904</th>
<th>Mod 5 model without Q24 covars n=1904</th>
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</thead>
<tbody>
<tr>
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<td>2453.7</td>
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<td>617.3</td>
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</tr>
<tr>
<td>CFI</td>
<td>0.878</td>
<td>0.862</td>
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<td>0.859</td>
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<td>NFI</td>
<td>0.724</td>
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<td>0.049*</td>
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<th>Mod 4 model with covariances n=220</th>
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<tbody>
<tr>
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<td>808.6</td>
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<td>BIC</td>
<td>1137.8</td>
<td>3178.7</td>
<td>969.6</td>
<td>1086.5</td>
</tr>
</tbody>
</table>

## Plotting the results

- Resulting scores adjusted to percentages
- Results can be represented as a ‘radar plot’
- A visual map to aid SEAL skills development ...
- Some cautionary notes (students, scales and key stages)
Interpreting the results

What kind of learner might these plots represent?
How might they get on in group work or individual work?
How would you use SEAL to develop their skills?

Producing scores for groups

It’s possible to produce average scores for pupil groups and display these as plots.
They tend to smooth out the fine detail.
We can use other ways to present group data that retain more info - box and whisker plots.
Every Child Matters and standards

- “there can be no school standards without Every Child Matters – and no Every Child Matters without school standards”

Jeffrey & Tabberer, October 2006
Directors General of the DCSF

DCSF SEAL case study

**SEAL Case Study School**

<table>
<thead>
<tr>
<th></th>
<th></th>
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<tbody>
<tr>
<td></td>
<td>97.7</td>
<td>98.4</td>
<td>98.5</td>
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</tbody>
</table>

Higher than average proportion of SEN for LA, which in turn is higher than national.

Evaluating the impact of SEAL

- A whole wealth of initiatives running in primary schools – DCSF website case study
- What is the unique contribution made by implementing an initiative as broad as SEAL?
- The ‘smoothing’ effect of school-level data
- The reality of riding the school improvement roller-coaster (Thomas 2007)
- Limitations of what numbers can tell us about an initiative like SEAL

DCSF SEAL case study

Improved attendance - 92.7%(04), 94.5%(05) [94.0%(06)]
Fixed term exclusions down 50% with no permanent in 05
Monitoring shows that children are much more able to sustain independent learning
Improvements self-esteem, resilience, understanding of others’ points of view and self-control
Whole-school language established for children and adults to talk about emotions and behaviour
Reduction in the number of serious whole-school incidents recorded.

Source: http://www.standards.dfes.gov.uk/primary/casestudies/isp/seal/birchwood/
National Strategy programmes – The 3-wave model

Wave 1 – for all whole school approach

Wave 2 – for small groups nurture groups
Family SEAL

Wave 3 – for individuals

Source: DfES (2005: 13)

Family SEAL pilot
Parent and Teacher surveys

- Students causing social and emotional concern identified in each class
- Random selection of 3 concern and 3 non-concern students from each class for monitoring
- School used surveys developed by Southampton Psychology Service (Faupel 2003)
  - Pre date SEAL but also based on Goleman’s five dimensional model
- Significant differences between parent and teacher measures of the student’s SEAL skills
  - ANOVA analysis
  - despite small samples (14 matched ‘concerns’ and 13 ‘controls’)
- Plan to use surveys during a pilot of Family SEAL in 5 schools across the LA
Family SEAL pilot
Parent and Teacher surveys

- 'Concern' students sig diff for empathy** and social skills* (parent higher)
- 'Control' students sig differences for self-awareness** and motivation* (teacher higher)

References